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Not having anticipated this result, I failed to note the species sufficiently, during the season, but from this it seems that occasional observations during another season will be well rewarded.

Ithica, N. Y.

WM. TRELEASE.

§ 18. *Draba verna*, L., and *Sisymbrium Thaliana*, Gaud., **biennial**.—I send you to-day rosettes of radical leaves [and flowers] of *Draba verna*, for a twofold purpose—to show that we too have an early season, and that, so far as my experience goes, *Draba verna* is certainly (always?) a biennial plant. The radical leaves are formed in the fall, and the stem and flowers are developed very early in the ensuing spring. *Sisymbrium Thaliana* has the same habit.

Quite an abundant locality near me has enabled me to watch both of them closely.

H. C. BEARDSLEE.

Painesville, Ohio, *Feb.* 18.

§ 19. **Montrosity in *Carya alba***, Nutt.—My attention was recently called to a peculiar montrosity in the nut of *Carya alba*, Nutt. Instead of the seed being divided into two main segments, as is normally the case, there were three principal divisions, separated from each other by thin partitions of the endocarp, which was itself somewhat triangular in cross section. Never having noticed such a sport before, I think the fact worth putting on record.

Errata.—In the list of Staten Island Plants in the Jan. No. please correct the following misprints: p. 11, l. 6 from bottom, read "*Cicuta bulbifera*;" p. 12, l. 6 from top, read "Todt Hill;" l. 28, read "New Dorp;" l. 34, read "*Eatonia obtusata*."

N. L. B.

§ 20. **Journal of the Cincinnati Society of Natural History.**—The number of this periodical, for April of last year, begins a new volume. The article of interest to botanists in this issue is Mr. Joseph F. James' "Catalogue of the Flowering Plants, Ferns, and Fungi growing in the vicinity of Cincinnati." The list of fungi embraced herein is one that was published in Mr. Lea's Catalogue in 1849, a work long ago out of print. Taking into consideration the fact that the study of Mycology is rapidly growing in favor in various parts of the country, and that the literature of the subject is greatly scattered, and some of it scarcely obtainable, the Cincinnati Society would be doing a great favor to students of this department of botany, as well as advancing the cause of science, by supplementing the bare list of fungi just noticed, with a republication of the descriptions of new species as they were originally given by Mr. Berkeley in Lea's work. We trust the Society will some day act on this hint, since, owing to the rarity of the publication mentioned, these descriptions are entirely inaccessible to most students.

As for the other portions of the Catalogue, the author here records, from his own observations, and from the Catalogues of Lea and Clark, 869 species of flowering plants, 5 *Equiseta*, 24 *Filices*, and 1 *Chara*. The number of species of fungi embraced in Mr. Lea's list is 319.

§ 21. **Botanical News.**—In the January number of the *American Naturalist*, Dr. Fred. Brendel concludes his interesting "Historical Sketch of the Science of Botany in North America, which was begun in the December number." This part embraces the period from 1840 to

1858. The mass of information here brought together is very valuable, and is not easily obtainable by the ordinary botanist, unless he be in possession of the facilities offered by a very extensive library.

The *Botanical Gazette* for January contains the following notes: "Catalpa speciosa," by Dr. Englemann; "Tennessee Plants," by Dr. Gray; "Littorella and Schizaea pusilla," by the same, in which it noted the discovery (as already reported in the BULLETIN) of these plants in Nova Scotia by our fellow-member, Miss Knight; "Notes on Fungi," by M. E. Banning; "Introduced Plants in Dallas Co., Texas," by J. Reverchon; and, "Dimorpho-dichogamy in Juglans and Carya," by Thos. Meehan.

In *Science Gossip* for January we find a "List of the Local Flowers of the British Islands"; "A Report of the *Science Gossip* Exchange Club, for 1879"; "Notes on some of the Smaller Fungi," by G. E. Massee; and, "How to Double Stain Vegetable Tissues," an article which will prove of interest to those engaged in the microscopic study of plant-structure.

In the January number of the *American Journal of Science and Arts*, Dr. Gray sums up the "Botanical Necrology for 1879." From this we learn that the number of well-known botanists who have passed away during last year is fourteen. The additional note in the February issue, just received, raises the number to sixteen.

Last year we referred in a brief note to some investigations that had been made by Prof. Church, of England, on "Vegetable Albinism," and in which he showed that albino leaves contain less lime, but more albuminoid nitrogen than green ones, thus indicating a capability for development without actual growth. We learn from the *Chemical News* that, in a more recent paper read before the London Chemical Society, Dec. 20, 1879, Prof. Church shows that these albino leaves do not perform leaf-functions—that they do not possess the power, even in sunshine, of decomposing the carbon dioxide of the air, but that they add largely to the amount of that gas therein, thus resembling the petals of flowers, and the action of green leaves during darkness. The author also investigated the comparative loss and gain of albino and green foliage when caused to grow under the same conditions.

A recent number of the *Berliner Monatsschrift* reports some interesting experiments by Prof. Hoffmann, of Giessen, on the influence produced on the sex of dioecious plants by thickly sowing their seeds, and from which he has arrived at the conclusion that sex does not reside in the seed but in the result of the conditions of germination. In spinach, for instance, he found that one hundred seeds crowded in a pot yielded two males to every female plant, but when seeds from the same sample were planted in the open ground, they gave an equal number of each sex. Similar results are said by Prof. Prantl, of Aschaffenberg, to obtain in the prothallia of ferns when crowded, and Prof. Pfeffer, of Tübingen, has observed that the same holds good with *Equisetum*, more antheridia than archegonia being produced.

The subject of chlorophyll has been attracting considerable attention lately, and the *Journal of Botany* notices the recently

published results of Pringsheim on the functions of this substance. The author's paper is published in the Monthly Report of the Royal Academy of Sciences of Berlin, for July, and we find it also in the *Botanische Zeitung* for December 12th, along with an article on the "Chlorophyll of Plants," by F. Hoppe-Seyler. Pringsheim considers that chlorophyll, so long as it exists in the cell, protects the protoplasm from the injurious effects of sunlight, and suggests that it may serve as a regulator of respiration, by reason of its strong absorption of light, especially of chemical rays. He has also detected in the ground substance of all chlorophyll grains, and of all amorphous chlorophyll, a new body very sensitive to light, and easily destroyed by it, and which he calls hypochlorin or hypochromyl. This substance he considers to be the true primary product of assimilation of green plants, from which are derived by oxidation, under the influence of light, the starchy and oily contents of chlorophyll grains. Accumulation and growth of the latter proceed in proportion with a decrease of the hypochlorin in it. In darkness the starch is less stable than hypochlorin, showing that the conversion of the latter into more highly organized bodies in the cell is favored by the increased respiration occurring in light. In the *Comptes Rendus* (p. 862) of the Académie des Sciences, M. Gautier describes the preparation of chlorophyll in a crystalline form. The details of the process would be out of place here, and we need only say that the chlorophyll, which is usually accompanied by a yellow crystallizable substance, is obtained in the form of flattened needles. The author remarks that he believes chlorophyll to be closely allied to bilirubine, both in its chemical composition and its reactions. Like the latter, it can pass successively from green to yellow, red, or brown, by the subtraction or addition of oxygen. This relation of chlorophyll to bilirubine, and consequently to the hematine derived from the blood is of considerable interest. A continuation of these researches may possibly lead to a discovery of the means by which the change from the green coloring matter of leaves to the bright colors of petals is effected in nature, and this would prove of incalculable value to the florist.

Harpers' Magazine for February, issued as usual on the 15th of the month preceding, contains an interesting and well illustrated article on the Botanic Garden of that pioneer of American botany, Jno. Bartram, a spot, which, "Among scientific men of all countries has been the Mecca of their pilgrimage when visiting our shores."

The Essex Institute have purchased all but ten of the entire edition of Mr. Geo. E. Davenport's monograph of *Botrychium simplex*, to be used in their foreign exchanges. The original subscribers to this paper may congratulate themselves, as the work will never be seen now "at a reduced price," the remaining copies being held at \$1.50 each.

Flora of Connecticut.—Mr. James N. Bishop, Plainville, Conn., sends us a circular, advertising that he is preparing a "Flora of the State, which will include both Phenogamia and Cryptogamia. It will be published during the winter of 1880-81." He calls for authentic information from all quarters.

The flora of Connecticut is very interesting and varied. We suspect that, unless Mr. Bishop is already well advanced with his work, he has hardly allowed time enough for its completion. Some years since we found a number of interesting plants at Canaan, Litchfield Co.: we recall *Moneses uniflora*, Gray, and *Betula pumila*, L., and there are several lime loving ferns, especially *Asplenium ebenoides*, R. R. Scott, found, we see, by Mr. J. S. Adams.

The California Horticulturist, San Francisco, generally contains some matters of interest to the technical botanist. In the February number, for example, is a charming account of a trip to Lassen's Peak, by Mrs. R. M. Austin, distinguished for her researches into the flora of that State. We quote one sentence, redolent of a botanical paradise: "There are acres of Mr. J. G. Lemmon's new *Corydalis Caseana*, Gray, growing along the streams which flow into the valley from the west, filling the air with its delicate fragrance."

The American Monthly Microscopical Journal, Romyn Hitchcock, 53, Maiden Lane, N. Y., one dollar per annum, pp. 20, is in fact, a continuation of the Quarterly, whose supposed demise was so unexpected and so much regretted, but which proves to have been but a stage of metamorphosis. Among the articles of special interest to botanists are Dr. Wolle's notes on "Fresh-Water Algae."

The Alphabetical Index of all known Ferns—a reprint of the index to the second edition of Hooker and Baker's Synopsis—is printed separately by Robert Hardwicke, 192, Picadilly, W. London, 1874, and is convenient for exchanges and other purposes.

The Academy, Feb. 7, contains what seems to us an instructive notice of Huxley's "Crayfish," by H. N. Mosely, in which, however, we find the following statement: "A most interesting fact is that the genus *Astacus* is represented by several species in British Columbia, Oregon, and California, while on the other side of the Rocky Mountains all the crayfish belong to a different genus—*Cambarus*. Now, the genus *Astacus* occurs in Japan, though not in South-Eastern Asia, Persia, Hindostan, Arabia, Syria or Africa. The connexion between the faunas of Japan and the Pacific coast of North America thus established is most interestingly borne out in the close relations which botanists have recognized between the floras of these two regions." This must be *Botanical News*, at least to the compatriots of Dr. Asa Gray.

§ 22. **Publications received.**—1. Vick's Floral Guide, 1880. James Vick, Rochester.—2. Aculeate Hymenoptera of North-western Kansas.—3. Generic Arrangement of the Bees allied to *Melissodes* and *Anthophora*.—4. The American Bembecidae; Tribe Stizini. All three by W. H. Patton, and extracted from the Bulletin of the Geological and Geographical Survey under F. V. Hayden, Washington, Nov. 30, 1879.—5. Science Advocate, Vol. I, No. 1. Henry A. Green, Editor. Issued quarterly by the Natural Science Society of Ateo, N. J.—6. The Naturalist's Quarterly, Vol. I, No. 1, Jan., 1880, Naturalist's Bureau, Salem, Mass., [apparently to take the place in Salem, vacated by Cassino].—7. A condensed List of a few of the most desirable Microscopes of moderate cost. R. & J. Beck, London and Philadelphia.—8. Arnold Puetz's Catalogue of Rustic Work, Plants, etc., Jacksonville, Fla.—9. Luther Burbank's Price List of Trees, Plants, Seeds, etc., Santa Rosa, Cal.